Sampling Site Description Form (SOP 1- Sheet 1 Front)
(MMT-SOP1-DS1 Front ver. 06102016)

Monitoring Area:			**Plot Label:**	**Observer:** **Recorder:**	
Date (mm/dd/yy):	Start Time (24hr):	End Time (24 hr):	Sample (GRTS) Draw ID	NVC Macrogroup (Full Name)	NVC Ecological System (Full Name)

Road Plot Corners	UTM X	UTM Y	Photo ID/ No.	For RDS Initial Direction (Bearing Degrees)	RDS Plot Width (m)
NW					
NE					
SE					
SW					
NW					
NE					
SE					
SW					

Is this plot in the expected Ecological System? (Y or N)	
If No, Name of Different Ecological System at Plot Center	
1st Disturbance	
2nd Disturbance	
3rd Disturbance	
4th Disturbance	
5th Disturbance	

Comments
(include names of other Ecological systems within 100 m of plot boundaries and disturbance in adjacent lands):

RDS and AGC Transect Coordinates (SOP 1- Sheet 1 Back)
(MMT-SOP1-DS1 Back ver. 06102016)

Monitoring Area:			**Plot Label:**		**Observer:**
Date (mm/dd/yy):	Start Time (24hr):	End Time (24 hr):	Random Starting Crop Row (No.; AGC Plot Only):		**Recorder:**
					Comments: (include mention of type of crop; configuration of rows; how many rows are in 75 meters)
RDS or AGC Transect No.	Start Point UTM X	Start Point UTM Y	End Point UTM X	End Point UTM Y	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Rapid Assessment Diagnostic (SOP 1- Sheet 2 Front)

(MMT-SOP1-DS2F ver. 06102016)

Monitoring Area:	Plot Label:	Observer: Recorder:

Date (mm/dd/yy):	Start Time (24hr):	End Time (24 hr):	Comments:

No of Milkweed Plants/Ramets by Segment

Milkweed Species Acronym	1	2	3	4	5	6	7	8	Total

Site Plant Community Checklist (SOP 1- Sheet 2 Back)

(MMT-SOP1-DS2B ver. 06102016)

Monitoring Area:			**Plot Label:**
Date (mm/dd/yy):	**Start Time (24hr):**	**End Time (24 hr):**	**Observer:**
			Recorder:

Characteristic (applies to plot area)	**0 = No; 1 = Yes**
Plot is dominated by cool season exotic grass (ex: smooth brome, Kentucky bluegrass)	
Plot is dominated by warm season native grass	
Invasive species dominate the plot (non-grass)	
Nectar plants virtually absent (approximately 0-10% cover)	
Nectar plants moderately present (10-25%)	
Nectar plants abundant to very abundant (25-100%)	
Shrubs and trees virtually absent (woodies mostly less than waist high; less than 10% cover)	
Shrubs and trees moderately abundant (woody cover is 10-30% but herbaceous cover is not significantly impeded; travel is impeded either slightly to moderately)	
Shrubs and trees significant encroachment (woody cover is 30-60% and is impeding herbaceous cover; travel is difficult through much of the plot)	
Woody species overstory dense (herbaceous cover is relatively sparse to nearly absent)	
Woody species distribution: covers over half to entire plot	
Woody species distribution: covers less than half the plot but more than a quarter of plot	
Woody species distribution: covers 0-25%	
Woody species distribution: patchy or sparse, covering less than 10% cumulatively	
For select southern regions: evidence of red imported fire ants in the plot (ants or mounds)	

Comments:

Pollard Butterfly Walk (SOP 2- Sheet 1)
(MMT-SOP1-DS1 ver. 06102016)

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Use this data sheet to describe site conditions when implementing SOP 2, the Pollard butterfly walk, to count and observe behaviors of adult monarch butterflies along 10, 75 m segments of a 750 m survey route.

Codes

Plot Acronyms (PRG, UPG, AGC, RDS, CPR)

RDS Segments 1-10 = Transects: 1, 3, 5, 7, 8, 9, 11, 13, 15 and 16

Wind Speed Categories:
(**0**) < 1mph (Smoke rises vertically);
(**1**) 1-3 mph (Wind direction shown by smoke drift;
(**2**) 4-7 mph (Wind felt on face; leaves rustle);
(**3**) 8-12 mph (Leaves, small twigs in constant motion, light flag extended);
(**4**) 13-18 mph (Raises dust and loose paper, small branches are moved);
(**5**) 19-24 mph (Small trees in leaf sway, crested wavelets on inland waters)
(**6**) 25-31 mph (Large branches in motion);
(**7**) 32-38 mph (Whole trees in motion. Effort needed to walk against the wind).

Sky Categories:
(**0**) Clear or a few clouds;
(**1**) Partly cloudy (scattered) or variable sky;
(**2**) Cloudy (broken) or overcast;
(**4**) Fog or smoke;
(**5**) Drizzle

Site and Plot Descriptive Data		Segment Descriptive Data				
		Segment	Wind Speed Category	Sky Category	Was the grass so high you had trouble observing monarchs out to 5 m? (Yes/No)	Were temperatures between 21-30 °C (70-87 °F) and wind speeds less than ~12 mph? (Yes/No)
Monitoring Area:		1				
Plot Label:		2				
Observer's Name:		3				
Recorder's Name:		4				
Date (mm/dd/yy):		5				
Start time: (24-hr Time)		6				
End time: (24-hr Time)		7				
Start Temp: (circle scale)	C F	8				
End Temp: (circle scale)	C F	9				
		10				

COMMENTS:

Pollard Butterfly Walk (SOP 2 - Sheet 2)

(MMT-SOP2-DS2 ver. 06102016)

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Record monarch observations on each Plot Segment according to directions in SOP 2. If no monarchs are observed for a segment, write "0" in the "Number of adult monarchs observed column" for the appropriate segment.

Segment No. (1 - 10)	No. Adult Monarchs Observed	No. Butterflies with Uncertain ID	Distance Category (1 = 0- 2.5 m; 2 = 2.51 - 5 m)	Behavior F(lying); R(esting); O(vipositing); M(ating); N(ectaring); U(nknown)	Nectar Plant Species Acronym (6 characters)	Comments and Notes

Miscellaneous Adult Monarch Observations (SOP 2-Sheet 3)
(MMT-SOP2-DS3 ver. 06102016)

Use this form to record any miscellaneous observations of adult monarchs during any visits to a plot. Following instructions in SOP 2. When doing SOP 3, only record observations of monarchs actively drinking nectar and the plant(s) that adults are actively drinking nectar from. ***DO NOT use this sheet for Pollard walk data***.

Date (mm/dd/yy)	Plot Label	Monitoring Area	Observer Name	Recorder Name	No. monarch butterflies observed	Nectar plant species acronym	Behavior (F, R, O, M, N, or U)

Comments:

Blooming Nectar Plants (SOP 3 Sheet 1-Front)
(MMT-SOP3-DS1F ver. 06102016)

Record the transect no. (1-16) and the subplot no. (1-10). ***Use a new data sheet for each transect***. For each subplot (**SubP**) record the code for the smallest area of the measurement frame (1-5) within which each blooming plant species occurred. Record the acronym (first three letters of genus and first three letters of species) for the species given in the species list, or if unidentifiable, use the naming convention given in Appendix C. Record only plants in flower, including milkweeds. If a subplot cannot be measured, indicate this by marking "NM" (Not Measured) on the data sheet. If nothing is in bloom, draw a line through the subplot column.

For AGC plots: transects may run end to end within a single row. Assign each sequence of 10 subplots as a transect with transect 1 being the first 10 subplots measured. Separate ends of transects in rows by 5 meters. Indicate the crop row number that a transect is located by counting crop rows from the NW most corner of the plowed field. Also answer the question about the transect being on the edge of the field.

Monitoring Area:	**Observer:**		**Recorder:**
Plot Label:	**Transect along the edge of the crop field? (Y / N)?**		**Transect No.:**
Date (mm/dd/yy):	**Start time:**	**End time:**	**Crop Row No.:**

Comments (notes on unidentified plants; photo log):

Plant Species Acronym	**Enter Measuring Frame Area Code (1-5)**									
	SubP1	**SubP-2**	**SubP-3**	**SubP-4**	**SubP-5**	**SubP-6**	**SubP-7**	**SubP-8**	**SubP-9**	**SubP-10**

Blooming Nectar Plants (SOP 3 Sheet 1-Back)
(MMT-SOP3-DS1B ver. 06102016)

Plant Species Acronym	Measuring Frame Area Code (1-5)									
	SubP1	SubP-2	SubP-3	SubP-4	SubP-5	SubP-6	SubP-7	SubP-8	SubP-9	SubP-10

Comments:

Milkweed and Immature Monarch Counts (SOP 3-Sheet 2 Front)
(MMT-SOP3-DS2F ver. 06082016)

When you encounter a milkweed species, enter the species acronym using 6-character code (Table SM-3.1), Transect No. (1-16) and Subplot No. (1-10). If milkweed is located between subplots, write the two subplot numbers separated by a dash between which the plants are located. For example, if milkweed is located between subplots 3 and 4, write 3-4 in the "Subplot" column. For each encountered milkweed, record the number of plants / ramets and record the number of stems per plant (SOP 3), separating stem values for different plants with commas. Write the number of eggs and instars found on plants in the indicated columns. If you do not find any milkweed in a subplot or between subplots, write "0" in the "No. Milkweed Plant / Ramets" column. For ASCSYR (*A. syriaca*), if all of the plants you encounter in a subplot or in the space between subplots have 1 stem, you only need to write 1 in the No. stems per plant column once.

Page___ of ____		**Monitoring Area:**		**Plot Label:**		**Observer:**			**Recorder:**	
Date (mm/dd/yy):		**Start Time:**		**End Time:**		**Temperature (in shade):**			**Scale: C F**	
Transect No.	**Subplot No.**	**Milkweed species acronym**	**No. Milkweed plants / ramets**	**No. stems per plant**	**No. eggs**	**No. 1st**	**No. 2nd**	**No. 3rd**	**No. 4th**	**No. 5th**

Comments:

Milkweed and Immature Monarch Counts (SOP 3-Sheet 2 Back) (MMT-SOP3-DS2B ver. 06082016)										
Transect No.	Subplot No.	Milkweed species acronym	No. Milkweed plants / ramets	No. stems per plant	No. eggs	No. 1st	No. 2nd	No. 3rd	No. 4th	No. 5th
Comments:										

Monarch Metamorphosis and Survival (SOP 4 - Sheet 1) (MMT-SOP4-DS1 ver. 06102016) Page___ of ___

Collect monarch 4th and 5th instars from monitoring sites. Following instructions in SOP 4, rear them in containers. Record the outcome (Does an adult emerge? Do flies emerge? Did the monarch die as a larvae or chry salis?, etc). If an adult monarch emerges, sample it for Oe according to instructions in SOP 4 and release it, recording the release location. If fly larvae emerge, allow them to pupate and send the adult flies and pupal cases to the MLMP.

Larvae ID # (start with 1)	Monitoring Area	Plot Label	Collection Date (mm/dd/yy)	Collector (name or names separated by comma)	Larval Instar at collection (4 or 5 only)	Result: parasitized by fly (fly), parasitized by wasp (wasp), dead from another cause (accidental, disease, unknown), adult monarch (adult)	Adult Monarch		Date of sampling for Oe (if applicable) and result (if known)		Number of parasitoids (if applicable)- date emerged from monarch		Comments (e.g. cause of monarch death - accidental; did adult flies emerge from fly pupae; other observations)	Release date if applicable and location		
							Date Emerged	Sex (M or F)	Date	Infected (Y/N/Unk)	No.	Date		Date	UTM NAD 83 X coordinate	UTM NAD 83 Y coordinate

SOP 1 Data Form and Entry Metadata			
Data sheet	**Field**	**Definitions and instructions**	**Example**
All	Monitoring Area	Give the name of the area in which the monitorin will be conducted or hosted.	WYB
All	Observers	Give the names of the observers conducting the data collection tasks	John Buck, Jane Doe
All	Date (mm/da/yy):	Give calendar date using number of month, day, and all digits of year	5/17/2016
All	Start Time (24hr):	Give the time that you arrived to a site and started the first task using 24-hr clock	0900
All	End Time (24 hr):	Give the time that you finished the first task using 24-hr clock	1200
All	Plot Label	Name consisting of **sampling stratum** acronym (PRG-protected grassland, UPG-unprotected grassland, AGC-agricultural with crops or orchard, CRP-land in the Consrvation Reserve Program, RDS-roadsides) plus a unique number (pre-assigned) that represents the priority of the sample draw within the sampling stratum and monitoring area	UPG02
1-front	Sample (GRTS) Draw ID	Give the code for the GRTS draw file and the unique 6 or 7-digit id number for the location found in the draw list for a monitoring area in SM 1. Note that the Sample (GRTS) Draw ID for AGC, UPG, and CRP Plots (sites outside of the refuge) were not used and there for should be left blank. The ID number is the first numeric value found in the SM 1 Refuge Specific Table value for SiteID. In the example NLS-NWR-**006**-0004, one would enter the red numbers as the Sample Draw ID	006
1-back	Random Starting Crop Row	For AGC plots give the random number assigned to the starting crop row. Start the first transect at the beginning of furrough on the northern most side of the crop row.	23
1-front & back	For RDS Direction Bearing	Enter the compass bearing for the direction of a roadside plot taken from the sample-draw point location. You must assume a quadrant of cardinal direction (SW or SE) for the sample draw point then use the edge of the road as the direction of travel to get the compass bearing.	any number of degrees occuring from 270º to 89º
1-front	X-Coord UTM-E	Give the UTM X coord listed for the indicated corner (NW, NE, SE, or SW) of a plot area for new sites where coordinates were not pre-assigned (NAD 83)	475955
1-front	Y-Coord UTM-N	Give the UTM Y coord listed for the indicated corner (NW, NE, SE, or SW) of a plot area for new sites where coordinates were not pre-assigned (NAD 83)	4604154
1-front	Comments	Write any useful observations about the character of the sampled site and plot area, including any monarchs or focal plants observed but not sampled	Saw 2 adult monarchs flying north as we walked to SE corner of plot; Bulls kept us offsite for 2 hours
1-front	NVC Macrogroup (Full Name)	Write the name of the National Vegetation Coverage Macrogroup shown on the field for the of the plot area and described by NatureServe	Great Plains Tallgrass Prairie and Shrubland
1-front	NVC Ecological System (Full Name)	Write the name of the National Vegetation Coverage Ecological System shown on the field for the of the plot area and described by NatureServe	Central Tallgrass Prairie
1-front	Is this plot in the expected Ecological System?	Give 'Y' for Yes or 'N' for No	Y
1-front	If not, which Ecologocal System is included in this plot? (Full Name)	Write the name of the correct National Vegetation Coverage Ecological System for the of the plot area as described by NatureServe	North-Central Interior Sand and Gravel Tallgrass Prairie
1-front	1st Disturbance (name in order of prevelance if obvious)	Give the disturbance listed in Table SOP-1.3 that is in >10% in the plot and most prevelant	Mowing
All	2nd Disturbance (name in order of prevelance if obvious)	Give the disturbance listed in Table SOP-1.3 that is in >10% in the plot and 2nd most or equally prevelant	Livestock grazing

1-back	3rd Disturbance (name in order of prevelance if obvious)	Give the disturbance listed in Table SOP-1.3 that is in >10% in the plot and 3rd most or equally prevelant	Flooded
1-back	4th Disturbance (name in order of prevelance if obvious)	Give the disturbance listed in Table SOP-1.3 that is in >10% in the plot and 4th most or equally prevelant	Prescribed Burn
1-back	5th Disturbance (name in order of prevelance if obvious)	Give the disturbance listed in Table SOP-1.3 that is in >10% in the plot and 5th most or equally prevelant	Plowed/disked
1-back	AGC or RDS Transect ***no.*** Start UTM X (NAD 83; 6 digits)	Give the UTM X coord for the **starting point** for the Transect number (1-16) at new sites where coordinates were not pre-assigned for AGC and RDS plots (Use the NAD 83 projection).	475600
1-back	AGC or RDS Transect ***no.*** Start UTM Y (NAD 83; 7 digits)	Give the UTM X coord for the **starting point** for the Transect number (1-16) at new sites where coordinates were not pre-assigned for AGC and RDS plots (Use the NAD 83 projection).	4604200
1-back	AGC or RDS Transect ***no.*** End UTM X (NAD 83; 6 digits)	Give the UTM X coord for the **end-point** for the Transect number (1-16) at new sites where coordinates were not pre-assigned for AGC and RDS plots (Use the NAD 83 projection).	475675
1-back	AGC or RDS Transect ***no.*** End UTM Y (NAD 83; 7 digits)	Give the UTM X coord for the **end-point** for the Transect number (1-16) at new sites where coordinates were not pre-assigned for AGC and RDS plots (Use the NAD 83 projection).	4604200
2	Milkweed Species Acronymn	Give the 6-character code for the milkweed species given in SM 3 for each refuge or Appendix D that lists the species for US and Canada. The system for the acronym is the first 3 letters of the genus name and first 3 letters of the specific epithet (unless modified for fixing codes that are the same for two different plant species). For unknown milkweed, identify as ASCUNK and note characterists, photograph, collect some material and label the collected material.	ASCSYR
2	No. of Milkweed Plants by Segment or Transect Number	Give the number of plants per RAD segment. Segments (75 m long) are all of the ondd-number transects for RDS or AGC plots such that 8 segments = Transects 1, 3, 5, 7 on one side of the road and transects 9, 11, 13, and 15 on the other side of the road. Likewise, for the AGC plots where several 75-m transects may be place continuously. Place a number beneath each segment number in each row. If there were no milkweed plants or ramets observed on a segment, draw a verticle line in the middle of the column to the length of the data form. If you use tally marks, replace the number of marks with a number for each segment. A milkweed plant is defined as all above-ground stems of milkweed originating from a visually-identifiable, common central point in the ground. A single milkweed plant may be composed of one or multiple stems depending on the species (For more details and pictures, see SOP 3:Milkweed Density).	On 1 form row for one species: 20 21 0 4 5 0 0 2
2	Total	Give the total number of plants by summing the numbers across the 8 segments in a single row on the form.	52
2	Comments	Notes documenting what you did or uncertainties in plant identification.	*One species of Asclepias found but couldn't identify; bagged and tagged as ASCUK1. Also photographed.*
3	Plot Plant Community Characteristics	Answer each of the 15 questions about dominance and abundance of various plant species within the plot either Yes (= 1) or No (= 0). Answer should apply to the plot area, not a given transect or segment.	0

SOP 2 Data Form and Entry Metadata			
Data sheet	**Field**	**Definitions and instructions**	**Example**
All	Monitoring Area	Name of general area where observations were made (WST-Washita NWR; NLS-Neal Smith NWR; WBY-Waubay NWR and vicinity)	NLS
All	Plot Label	Name consisting of **sampling stratum** acronym (PRG-protected grassland, UPG-unprotected grassland, AGC-agricultural with crops or orchard, CRP-land in the Consrvation Reserve Program, RDS-roadsides) plus a unique number (pre-assigned) that represents the priority of the sample draw within the sampling stratum and monitoring area	PGR12
All	Observer's Name	Name of person counting adult monarchs	Holly Holt
All	Recorder's Name	Name of person recording data	Holly Holt
All	Date	Date (mm/dd/yy) that SOP 2 was implemented at this plot	06/15/16
All	Start Time	Time that SOP 2 implementation began, including any tasks for remarking or re-establishing the plot or segments. Use the 24-hr clock (e.g. 11:15 AM = 1115; 1115 PM = 2315)	1030
All	End Time (24-hr)	Time that SOP 2 implementation ended. Use the 24-hr clock (e.g. 5:00 AM = 0500; 5:00 PM = 1715)	1300
1, front	Start Temp Scale (C or F)	Indicate whether temperature units are given in Celsius or Farenheit	C
1, front	Start Temp	Temperature at start of adult monarch count	22
1, front	End Temp Scale (C or F)	Indicate whether temperature units are given in Celsius or Farenheit	C
1, front	End Temp	Temperature at start of adult monarch count	23
1, front	Segment or Transect No.	Indicate the **segment** number from which observations are being recorded for a PRG, UPG or CRP plot (1-10) or the **transect** number observations are being recorded for a RDS plot (1, 3, 5, 7, 8, 9, 11, 13, 15 or 16). Note that if one of the above RDS-plot transects cannot be measured, then even-numbered transects, starting with no. 2 can be sustituted and measured)	2
1, front	Wind Speed Category	Based on the wind speed categories , list the wind speed value (whole number from 0-7): **0**-(< 1 mph; smoke rises vertically); **1**-(1-3 mph; wind direction shown by smoke drift); **2**-(4-7 mph; wind felt on face; leaves rustle); **3**; (8-12 mph; leaves, small twigs in constant motion, light flag extended), **4**-(3-18 mph; raises dust and loose paper, small branches are moved), **5**-(19-24 mph; small trees in leaf sway, crested wavelets on inland waters). Fill out for each segment or transect walked	0
1, front	Sky Category	Based on sky categories providded, list the sky category value (whole number from 0-5, excluding 3): **0**-Clear or a few clouds; **1**-Partly cloudy (scattered) or variable sky; **2**- Cloudy (broken) or overcast; **4**-Fog or smoke; **5**-Drizzle. Fill out for each segment or transect walked.	1
1, front	Was the vegetation so high you had trouble observing monarchs out to 5 meters?	Answer Yes or No to the question about obstruction of view for each segment or transect walked	yes

1, front	Were temperatures between 21-30 °C (70-87 °F) and wind speeds less than ~12 mph?	Answer Yes or No to the question about preferred weather conditions for each segment or transect walked	yes
All	Comments	Space provided for additional observations or comments, particularly about unidentifiable species or site conditions	There was a single, strong gust of wind during the 2nd segment
1, back	Plot Segment or Transect No.	Indicate which segmant number observations are being recorded for a PRG, UPG or CRP plot (1-10) or which transect number observations are being recorded for a RDS plot (1, 3, 5, 7, 8, 9, 11, 13, 15 or 16. Note that if one of the above roadside transects cannot be monitored, techs will monitor even numbered transects, starting with number 2). Note that every segment or transect measured should be listed, even if no monarchs were observed for that segment or transect.	2
1, back	No. adult monarchs observed	Number of adult monarchs observed in this particular point (Note, record a 0 if no monarchs are observed for a given plot segment or RDS transect). Record the number of monarchs observed for each behavior on a different data form line (row). If the behavior is nectaring record the number of monarchs nectaring on the same plant along with the plant species acronymn on the same line (row) of the data form--see Behavior Code and Nectar Plant Species Acronym, below.	1
1, back	No. uncertain IDs	Number of observed adult butterflies that were uncertain, whether they are monarchs or not	0
1, back	Distance Category	Use a code to describe the range of perpendicular distance of the monarch observations from transect line: **1**-(0-2.5 m); **2**-(2.51-5 m)	1
1, back	Behavior Code	Use the following codes to record behavior of observed monarchs (**F**-flying; **R**-resting; **O**-ovipositing; **M**-mating; **N**-nectaring; **U**-unknown).	N
1, back or 2	Nectar Plant Species Acronym	If adult is seen obtaining nectar from a plant, record the plant species acronym (first three letters of genus and first three letters of specific epithet)	ASCSYR
2	No. Monarch Butterflies Observed	Record the number of monarch butterflies seen nectaring on a plant(s) of the same species.	3

SOP 3 Data Form and Entry Metadata		
Data Field	**Definitions and instructions**	**Example**
Observer	Give the names of the observers conducting the data collection task. If more than one, give names separated by commas.	John Buck, Jane Doe
Recorder	Give the names of the recorders conducting the data collection task. If more than one, give names separated by commas.	Jane Doe
Monitoring Area	Give the code for the general area in which the monitoring will be conducted or hosted. WST-Washita NWR, NLS-Neal Smith NWR, WBY-Waubay NWR	WST
Plot Label	Enter the combination of plot type acronym and pre-assigned number for each plot: PGR: Protected Grassland UPG: Unprotected Grassland CRP: Conservation Reserve Program lands RDS: Roadside (< 55 mph speed limit) AGC: Agriculture (row crop or orchard) USA: Urban/Suburban Areas plus the unique number which is order of priority of grts draw within that stratum at that monitoring area.	AGC04
Transect No.	List the transect number (1-16). In AGC Plots, 75-m long transects can be placed sequentially in the same direction in a single crop row.	3
Crop Row No.	If you are at an AGC site, list the crop row number counting from the most NW corner of the agricultural field.	4
Date	Enter the date in the following format MM/DD/YY	05/17/16
Start Time	Give the time that you arrived to a site and started the first task using 24-hr clock	0900
End Time	Give the time that you finished the first task using 24-hr clock	1300
Transect along the edge of the crop field? (Y / N)?	If you are at an AGC Plot, indicate whether the transect that you are on is next to and running parallel to the edge of the field. Answer Yes when the transect is placed into the first or last furrow in a field.	Yes
Species Acronym	Enter **blooming** plant species observed using the 6 character code found in Table SM-3.2. If a SubP cannot be measured because it falls into incorrect strata or is not accessible, enter 'NM' for the plant species acronym.	ASCSYR

Measuring Frame Area Code (1-5)	Enter the smallest measuring frame number (1-5) that a plant species was observed in **each subplot (SubP 1-10)** of this transect. If a species observed previously is not observed in a SubP enter a '0' in the cell. If a SubP cannot be measured because it falls into incorrect strata or is not accessible, enter 'NM'. Make sure to measure a replacement SubP on transect 16.	3
Subplot No.	Enter a subplot number (1-10) or if milkweed is located between subplots, write the two subplot values with a dash inbetween. For example, if milkweed is located between subplots 3 and 4, write "3-4".	3-4
Milkweed species acronym	Give the 6-character acronym for milkweed plant species listed for your monitoring area in Table SM-3.2.	ASCTUB
No. Milkweed plants/ramets	Record the number of milkweed plants/ramets observed. If no plants are observed in the space monitored, write "0".	2
No. stems per plant	Record the number of stems per plant observed, separating values with commas for each plant. Exception: if the milkweed observed is *A. syriaca* and every plant in space monitored has 1 stem you need only write "1" once	8, 9
No. eggs	Record the number of monarch eggs observed	3
No. 1st instar	Record the number of 1st instar caterpillars observed	4
No. 2nd instars	Record the number of 2nd instar caterpillars observed	0
No. 3rd instars	Record the number of 3rd instar caterpillars observed	1
No. 4th instars	Record the number of 4th instar caterpillars observed	2
No. 5th instars	Record the number of 5th instar caterpillars observed	3
Comments	Include any relevant comments	Collected and photographed 3 unknown plant species which were given the acronyms UNKSP1, UNKSP2, UNKSP3

SOP 4 Data Form and Entry Metadata		
Data fields	**Definitions and instructions**	**Examples**
Larva ID #	Enter a unique number to identify the larvae collected. Start with the number "1"	4
Monitoring Area	Give the code for the general area in which the monitoring will be conducted or hosted. WST-Washita NWR, NLS-Neal Smith NWR, WBY-Waubay NWR	NLS
Plot Label (Code)	Enter the combination of plot type acronym and pre-assigned number for each plot: PGR: Protected Grassland UPG: Unprotected Grassland CRP: Conservation Reserve Program lands RDS: Roadside (< 55 mph speed limit) AGC: Agriculture (row crop or orchard) USA: Urban/Suburban Areas plus the unique number which is order of priority of grts draw within that stratum at that monitoring area.	USA02
Collection date	Enter the date the caterpillar was collected in the following format MM/DD/YY	05/17/17
Collector name	Enter the name or names of those who collected the larvae separated by commas.	Jane Doe, Mona Arch
Larval instar number at collection (4 or 5 only)	Choosing from the drop-down menu, enter the larval instar number of the caterpillar at the time of collection ("4" or "5" only)	Enter "4" for a fourth instar larvae
Result	Choose the appropriate outcome from the drop-down menu for each caterpillar collected. If an adult caterpillar emerges enter "adult." If the caterpillar was parasitzed by flies or wasps enter "fly" or "wasp". If the specimen dies, enter cause of death as "disease", "accident" or "unknown".	adult
Date of adult monarch emergence	Enter the date the adult monarch emerged in the following format MM/DD/YY	06/17/17
Sex of emerged adult monarch	Choosing from the drop-down menu, enter the sex of the adult monarch. Enter "M" for a male and "F" for a female.	M
Date sampled for Oe	Enter the date the emerged adult monarch was sampled for Oe in following format MM/DD/YY.	06/17/17
Oe infection status	If known, enter the infection status for the monarch ("YES" for infected, "NO" for not infected, "UNK" for unknown).	UNK

Number of parasitoids emerged from monarch	Enter the number parasitoids that emerged from the monarch specimen	2
Date parasitoids emerged from monarch	Enter the date the that parasitoids emerged from the monarch specimen in following format MM/DD/YYYY.	06/17/17
Comments	Enter any additional observations about specimen and/or information about cause of death	*3 tachinid fly pupae emerged from the chrysalis. 2 flies later emerged from their puparium, and one fly pupae did not produce an adult.*
Date of release	Enter the date the that monarch was released in the following format MM/DD/YY	06/17/17
Location of release (X-coordinate)	Give the UTM X coordinates using (NAD 83) of the release point	447385
Location of release (Y-coordinate)	Give the UTM Y coordinates using (NAD 83) of the release point	3345679